

Fluke Power Logger



▲ 1735

Includes soft carrying case, 4 flexible current probes (15/150/3000A), voltage leads & clips, RS-232 PC interface cable, Power Log software, AC adapter, manual

ORDERING INFORMATION

Fluke 1735 Power Logger

Accessories

FL/MBX 1A/5A Clamp for secondary CT applications
FL/MBX 5A/50A Clamp for general applications
FL/C534 Water-tight hard carry case with rollers

- Monitor demand at 15 minute or user-defined averaging periods
- Verify efficiency improvements with energy consumption tests
- Measure harmonic distortion caused by electronic loads
- Capture voltage dips and swells from load switching
- Easily confirm instrument setup with color display of waveforms and trends
- Measure all three phases and neutral with included 4 flexible current probes
- View graphs and generate reports with included Power Log software
- Compact, rugged design with IP65 case, 600 V CAT III and 2-year warranty

The Fluke 1735 Power Logger is ideal for conducting 30-day load studies according to National Electric Code 220.65. The 1735 also logs most electrical parameters and harmonics as well as capturing voltage events. Sets up in seconds with the included flexible current probes and color display.

SPECIFICATIONS

| | |
|---------------------|---|
| V-rms Wye Ranges | 57/66/110/120/127/220/230/240/260/277/347/380/400/417/480 V ac |
| V-rms Delta Ranges | 100/115/190/208/220/380/400/415/450/480/600/660/690/720/830 V ac |
| Resolution | 0.1 V |
| A-rms Ranges | 15/150/3000 A rms (at sine) with supplied flex clamps |
| Resolution | 0.01 A |
| PF (Power factor) | Range 0-1, Resolution 0.001 |
| Frequency | 46-54 Hz and 56-64 Hz, Resolution 0.01 Hz |
| Power Measurements | P (active), S (apparent), Q (reactive), D (distorting) |
| Energy Measurements | kWh, kVAh, kVARh |
| Display | ¼ VGA Graphic Color, 320x240 pixel, with background lighting |
| Battery Life | Typical >12 hours with backlight low and >6 hours with backlight high |
| Working Temperature | -10 °C to +50 °C (+14 °F to +122 °F) |
| Dimensions | 240 mm x 180 mm x 110 mm (6.1 in x 4.6 in x 2.8 in) |

Yokogawa Portable Data Logger



▲ XL122 CE

SP1 Kit includes mating screw terminal block, US power cord, rechargeable battery, protective rubber boot, carrying case, utility software & manual.

Utility software for Windows XP displays data & waveforms, copies data, converts to CSV, saves settings & files.

Accessories

YE/90060 Type K thermocouple, 48" length with mini-plug
YE/93037 Carrying case
YE/94009 Lithium ion battery, 2.4Ah, 7V
YE/91029 Digital I/O cable, 3m
YE/91011 RS232 cable to PC (9 pin)
YE/93039 Stand for tilted desktop, wall or DIN rail mounting
YE/XL900 Datum-LOGGER PC data analysis software (WinXP)

- 8 or 16 isolated analog input channels
- Supports direct TC, RTD and DCV inputs
- 16MB internal memory + flash card capability
- Wide viewing angle 3.5" color LCD
- Trigger and alarm functions
- 1 pulse and 2 digital logic inputs
- 100msec to 1 hour sample interval
- Ethernet, USB, RS232 & RS485
- Web server, FTP client and email functions

SPECIFICATIONS

| Input | Type | Accuracy | Resolution |
|-----------------------|---|---|---------------------|
| | DCV: $\pm 100/500\text{mV}$, $\pm 1/5/10/50\text{V}$, 1-5V F.S. | $\pm 0.1\%$ F.S. | $10\mu\text{V}$ |
| | TC: K,E,J,T,L,U,N | $\pm 0.05\%$ F.S. $\pm 1^\circ\text{C}$ | 0.1°C |
| | TC: W,R,S,B | $\pm 0.05\%$ F.S. $\pm 2^\circ\text{C}$ | 1°C |
| | 3-wire RTD: Pt100, Jpt100 | $\pm 0.05\%$ F.S. $\pm 0.5^\circ\text{C}$ | 0.1°C |
| | Pulse: Instantaneous value, integration, revolution | | |
| | Logic: Voltage, contact | | |
| Maximum Input | $\pm 50\text{V}$ | | |
| Measurement Interval | 100/200/500ms, 1/2/5/10/20/30s, 1/2/5/10/20/30/60min (8 ch max for 100ms) | | |
| Data Storage | 16MB internal memory, External storage: Compact flash memory card (Type II), SD card, USB memory (copy function only) | | |
| Functions | Alarm output (4ch), Trigger function (pre-trigger/trigggerdelay), Calculation (inter-channel calculation, linear scaling, statistical operation), Average, Automatic Measurement | | |
| Display Screens | Waveform, digital, bargraph, waveform + digital, alarm summary, log | | |
| Communication | 10Base-T/100-BaseTX Ethernet (SMTP, HTTP, FTP, TCP/IP, SNMP protocols) USB 1.1 (Windows XP) RS-232 @2.4-38.4kbps, RS-485 @2.4-115.2kbps half-duplex (ASCII or Modbus RTU protocols) | | |
| Operating Temperature | 0 to 50°C , 5 to 85%RH (non-condensing) | | |
| Storage Temperature | -20 to 60°C , <90%RH (non-condensing) | | |
| Size | 6.1" x 6.1" x 2.2" (155x155x55mm), without projecting parts or rubber boot | | |
| Weight | 1.8 lbs (800g), without battery or rubber boot | | |
| Safety | EN61010-1: Measurement Category I, Pollution degree 2, Rated transient 350Vp-p | | |

ORDERING INFORMATION

| | |
|----------------|--|
| YE/XL121-D/SP1 | 8 channel Portable Data Station Kit. Plug-in screw terminal block accepts wires |
| YE/XL122-D/SP1 | 16 channel Portable Data Station Kit. Plug-in screw terminal block accepts wires |
| YE/XL124-D/SP1 | 16 channel Portable Data Station Kit. M3 screw terminal block accepts wires or lugs. [no RTD inputs] |

Extech Sound Meters

Datalogging Sound Level Meter

- ANSI Type 2 meter with 16000 record memory
- Large LCD with fast 50 segment bargraph
- Time stamped data, Max Hold function
- RS-232 & recorder outputs
- Tripod mounting

407764 ▶



SPECIFICATIONS

| | |
|-----------------|---------------------------------|
| Range: | 30-130dB |
| Basic Accuracy: | ±1.5dB |
| Weighting: | A & C |
| Response Time: | Fast, slow |
| Dimensions: | 10.4 x 2.8 x 0.8" (265x72x21mm) |

ORDERING INFORMATION

Complete with microphone, wind cover, Windows software, serial cable, AA batteries & carrying case.

| | |
|---------------|---|
| EX/407764 | Datalogging Sound Level Meter |
| EX/144117 | 120V AC Adapter |
| EX/407764-EXT | Microphone Extension Cable, 15ft (4.7m) |
| EX/407744 | 94dB Sound Calibrator |
| EX/407766 | 94/114dB Sound Calibrator |

Sound Level Monitor

NEW

- Extra large display with bargraph
- Adjustable high or low limit
- OVER display
- External alarm output
- Time stamped Max reading memory
- Meets ANSI Type 2
- Wall, bench or tripod mounting

▶ SL130



SPECIFICATIONS

| | |
|----------------|----------------------------------|
| Frequency: | 31.5Hz - 8kHz |
| Ranges: | 30-80dB, 60-110dB, 80-130dB |
| Resolution: | 0.1dB |
| Weighting: | A & C |
| Response Time: | Fast (125ms), Slow (1s) |
| Dimensions: | 8.75 x 7.1 x 1.25" (22x18x3.2mm) |

ORDERING INFORMATION

Complete with swivel microphone, wind cover, AA batteries

| | |
|-----------|--|
| EX/SL130G | Sound Level Monitor with 110V AC Adapter |
| EX/SL125 | Microphone Extension Cable, 15ft (4.7m) |
| EX/SL123 | AC Alarm Relay Module, 9ft cable |
| EX/SL124 | DC Alarm Relay Module, 9ft cable |
| EX/TR100 | Tripod |

Extech Clamp-On Power Datalogger

- 1000A Clamp measures 1Ø & 3Ø power to 600kW
- Display True Power, Apparent Power, Power Factor, True RMS Voltage & Current, Resistance and Frequency
- Dual display of kW+PF, kVA+PF, V+A, A+Hz or V+Hz
- Clamp jaws open to 1.8" (46mm)
- Data Hold and Auto Power Off
- Built-in recorder datalogs up to 4000 readings
- 25 point data memory viewable on the LCD display
- Full function display on large 4-digit LCD with fast 40 segment bargraph, Peak Hold and Min/MAX
- CAT III-600V; CE
- Includes 9V battery, alligator clips, test leads, case, RS-232 module, Windows compatible software and cable

382068 ▶



SPECIFICATIONS

| | Range | Resolution | Basic Accuracy |
|------------------------|------------------------------|------------|----------------|
| True Power: | 600kW | 10W | ±(2%rdg+5d) |
| Apparent Power: | 1000kVA | 10VA | ±(2%rdg+5d) |
| Peak Current: | 1000A | 0.1A | ±(6%rdg+10d) |
| Peak Voltage: | 600V | 0.1A | ±(6%rdg+10d) |
| AC Current (40-500Hz): | 1000A | 0.1A | ±(1.5%rdg+5d) |
| DC Current: | 1000A | 0.1A | ±(1.5%rdg+5d) |
| AC Voltage (40-500Hz): | 600V | 100mV | ±(0.5%rdg+5d) |
| DC Voltage: | 600V | 100mV | ±(0.5%rdg+5d) |
| Frequency: | 5kHz | 0.1Hz | ±(0.5%rdg+5d) |
| Resistance: | 10kΩ | 1Ω | ±(1%rdg+5d) |
| Continuity: | Beeper when <50Ω | | |
| Dimensions/ | 10.2x3.7x1.8" (260x93x45mm)/ | | |
| Weight: | 15.9oz (450g) | | |

ORDERING INFORMATION

| | |
|----------------|---|
| EX/382068 | Clamp-on Power Datalogger kit with software |
| EX/382068-NIST | Clamp-on Power Datalogger kit with software & NIST certificate |
| EX/480172 | AC Line Splitter, 3-prong plug with x1 & x10 postions, live voltage indicator |

480172 ▶



Fluke Leakage Clamp Meter

NEW

- Measure leakage current with 1 μ A resolution, for monitoring of insulation erosion
- Measure to 60 A, for general installation needs
- Perform tests without powering down the installation or disconnecting equipment
- Advanced shielding ensures accurate results when measuring near other conductors
- Easy-to-carry, pocket-sized clamp with 40 mm (1.5") jaw size
- Handy "Display-Hold" button for capturing readings in hard-to-reach places
- Auto power-off, with warning buzzer, saves battery life
- Meets safety standard VDE0404-4 and VDE0702 for leakage current and differential current measurement of electrical appliances



360

SPECIFICATIONS

| | |
|---------------------------------------|---|
| Ranges: | 3 ma, 30 mA, 30 A, 60 A |
| Resolution: | 0.001 mA, 0.01 mA, 0.01 A, 0.1 A |
| Accuracy: | $\pm 1\%$ rdg $\pm 5d$ (≤ 50 A) $\pm 5\%$ rdg $\pm 5d$ (> 50 A) |
| Frequency range: | 15-150 Hz |
| Maximum current: | 60 A rms |
| Digital display: | 3200 count LCD |
| Bargraph display: | 32 segment LCD |
| Measurement cycle: | 2/sec. (digital display), 12 /sec. (bargraph display) |
| Range switching: | Auto-range |
| Environment: | 0-50 °C, $< 80\%$ RH (non-condensing) |
| Temperature coefficient: | $< 0.05\%$ of range/°C (0-18 °C & 28-50 °C, < 50 A) |
| Influence of external magnetic field: | 0.0005 % typical (on current value of adjacent cable) |
| Influence of conductor position: | Within accuracy |
| Circuit voltage: | ≤ 300 Vrms |
| Safety standard: | EN 61010-1, EN 61010-2-032. 300 V CAT II, Pollution Degree 2 |
| Battery type: | 3 V Lithium battery (CR2032) |
| Battery life: | Approx. 90 hours (continuous use) |
| Conductor diameter: | 40 mm (1.57") max. |
| Dimensions: | 176 x 70 x 25 mm (6.9" x 2.8" x 1") |

ORDERING INFORMATION

Fluke-360 Leakage Current Clamp Meter

Hioki AC Power Monitors

Clamp-On Power HiTester

- Measure up to two 3 ϕ , 3-wire systems
- Measure up to four 1 ϕ , 2-wire systems
- 5A to 5000A range
- Simultaneous recording of demand values and harmonics
- Ideal for troubleshooting & energy management



3169

3169 SPECIFICATIONS

| | | | |
|------------|--|-------------|---|
| Systems: | 1 ϕ 2-wire, 1 ϕ 3-wire, 3 ϕ 3-wire, 3 ϕ 4-wire (50/60 Hz) | Accuracy: | $\pm 0.2\%$ rdg $\pm 0.1\%$ f.s. + Clamp accuracy (for active power) With 9660: $\pm 0.3\%$ rdg $\pm 0.02\%$ FS With 9661: $\pm 0.3\%$ rdg $\pm 0.01\%$ FS With 9669: $\pm 1.0\%$ rdg $\pm 0.01\%$ FS With 9667: $\pm 2.0\%$ rdg ± 1.5 mV With 9694: $\pm 0.3\%$ rdg $\pm 0.02\%$ FS |
| Functions: | ACV, ACA, W, VA, VAR, PF, integrated power, Frequency, Harmonics | Harmonics: | Up to the 50th order, $\pm 3\%$ FS + measurement accuracy |
| Ranges: | 150/300/600V With 9660: 5-100A, 4 ranges With 9661: 5-500A, 5 ranges With 9669: 100A-1kA, 3 ranges With 9667: 500A-5kA, 2 ranges With 9694: 0.5A-5A, 3 ranges | Power: | 100 to 240VAC, 50/60 Hz |
| Power: | 75W to 9MW, 108 combination patterns | Dimensions: | 8.3"W x 6.3"H x 2.4"D |

Power Quality Analyzer

- Measure Dips, Swells, Interruptions, Flicker, Transients
- Harmonic to the 50th order
- High frequency transient over voltage
- Detection and waveform display
- 4 current and 4 voltage channels



3196

3196 SPECIFICATIONS

| | |
|------------------|---|
| Systems: | 1 ϕ 2-wire, 1 ϕ 3-wire, 3 ϕ 3-wire, 3 ϕ 4-wire (50/60 Hz) |
| Ranges: | Ch1, Ch2, Ch3: 150/300/600V AC Ch4: 60/150/300/600V AC, 60/600V DC 9660: 50/100A, 9661: 50/500A, 9667: 500/5000A, 9669: 1000A |
| Measurements: | 1. Transient overvoltage 2. Voltage swell, Voltage dip, Voltage interruption 3. Frequency, Voltage, Current, Voltage/Current peak, Active/Reactive / Apparent power, Power factor, DPF 4. Voltage unbalance ratio, Current unbalance ratio 5. Harmonic voltage/current/power, Inter harmonic voltage/current, Harmonic voltage current phase angle, Total harmonic/inter harmonic distortion 6. IEC flicker[Pst, Plt], K factor / $\Delta V10$ (Japan) |
| Internal Memory: | 13MB |
| Interface: | Flash ATA card (up to 528MB), RS-232C, LAN (10BASE-T), HTTP server function |
| Power: | Rechargeable battery & AC adapter |
| Dimensions: | 11.8"W x 8.5"H x 2.7"D |

ORDERING INFORMATION

Order Clamp-on Sensor Separately

| | |
|------------|---|
| HK/3169-20 | Clamp-On Power HiTester, with voltage leads |
| HK/3196 | Power Quality Analyzer, with voltage leads |
| HK/9660 | 100A Clamp-On Sensor |
| HK/9661 | 500A Clamp-On Sensor |
| HK/9669 | 1000A Clamp-On Sensor |
| HK/9667 | 5000A Flexible Clamp-On Sensor |
| HK/9694 | 5A Clamp-On Sensor |

Other Options: Printer, memory cards, PC software, carrying case

Yokogawa Clamp-on Power Monitors/Analyzers



CW121 Clamp-on Power Monitor

For maintenance and long term monitoring of electrical equipment and systems.

- Supports 1Ø 2W to 3Ø 4W systems
- Internal flash card memory
- RS-232 or RS-485 communications
- Sends data to internal memory, PC, optional floppy disk or printer
- Compact and light weight unit

SPECIFICATIONS

| | |
|-------------------------|---|
| Voltage: | 150, 300, 450 ACV |
| Current: | 20 - 3000 ACA |
| Measurement Parameters: | V, A, VAR, PF, Hz, Wh |
| Accuracy: | ±0.8% rdg ± 0.4% rng, depending on clamp probe |
| Record Time: | Settable from 1-30 sec., 1-30 min., 1 hr. |
| Flash Memory: | Compatible up to 128 MB flash card |
| External I/O: | One of three options for start / stop Wh |
| Data Accumulation: | 24 hours of data in one second intervals |
| Wiring Error Check: | Function ensures correct measurement operations |
| Communications: | RS-232 standard, RS-485 available |
| Display: | Large backlit LCD |
| Safety: | UL approved |
| Dimensions: | 4.6"W x 6.4"H x 2.0"D (117x161x51mm) |
| Power: | 100 - 240V AC, 50/60Hz (CAT II) |

ORDERING INFORMATION

YE/CW121-D-1/SP1 Clamp-on Power Monitor with complete accessory package

Includes all required hardware and software, except clamp-on current probes: Portable Clamp-on Power Meter, UL/CSA standard power cord, four voltage probes, RS-232 communications, 9 pin RS232 communication cable, 16 MB flash memory card and card holder, flash card reader and cable, power cable. (Supplies power from measured circuit), magnetic case for power meter, carrying case for power meter and accessories, data analysis software package.

Add suffix to part number for correct size Current Clamp-on Probes:

| | |
|--------|--|
| /C2 | Clamp-on Probes for 20/200A (3pcs / set) |
| /C4 | Clamp-on Probes for 500A (3pcs / set) |
| /C6 | Clamp-on Probes for 700A (3pcs / set) |
| /C8 | Clamp-on Probes for 50A (3pcs / set) |
| /96034 | Clamp-on Probe for 3000A Jaw type |
| /96035 | Clamp-on Probe for 3000A Flexible type |



CW240 Clamp-on Power Analyzer

Records electric energy measurements, instantaneous measurements, demand measurements, waveform measurements, voltage fluctuation measurements, harmonics measurements and leakage current.

- Supports 1Ø 2W to 3Ø 4W 4i (neutral line current) systems
- Supports two system measurements (1Ø 2W X2) (1Ø 3W X2) (3Ø 3W X2)
- Data logging interval up to 1 hour
- Internal flash card memory system
- RS-232 or RS-485 communications
- Sends data to internal memory, PC, optional floppy disk or printer

SPECIFICATIONS

| | |
|-------------------------|---|
| Voltage: | 150, 300, 600, 1000 ACV |
| Current: | 200.0 ACmA - 3000 ACA |
| Measurement Parameters: | V, A, VAR, PF, HZ, WATTS, VA, PA |
| Record Time: | 1 cycle- 0.5 sec., 1-30 sec., 1-60 min . |
| Flash Memory: | Compatible up to 512 MB flash card |
| Harmonic Measurement: | up to 50th |
| Wiring Error Check: | Function ensures correct measurement operations |
| Communications: | RS-232 standard, RS-485 available |
| Display: | Large backlit LCD |
| Safety: | UL approved |
| Operating temperature: | 5-40°C, 5-80% RH (no condensation) |
| Dimensions: | 8.11" W x 7.25" H x 2.56" D (206 x 184 x 65mm) |
| Power: | 100 - 240V AC, 50/60Hz (CAT II) |
| Location: | Indoor use |

ORDERING INFORMATION

YE/CW240-D/DA/PMI/SPI Clamp-on Power Analyzer with complete accessory package. Includes all required hardware and software, except clamp-on current probes (see below): UL/CSA standard power cord, four voltage probes, NiMH battery pack & six AA alkaline batteries, carrying case, 16 MB flash card and card reader, 9 pin RS-232 cable and Toolbox software package, users manual, quick manual, communications manual.

Add suffix to part number for correct size Current Clamp-on Probes:

| | |
|--------|--|
| /C2 | Clamp-on Probes for 20/200A (4 pcs / set) |
| /C4 | Clamp-on Probes for 500A (4 pcs / set) |
| /C6 | Clamp-on Probes for 700A (4 pcs / set) |
| /C8 | Clamp-on Probes for 50A (4 pcs / set) |
| /C10 | Clamp-on Probes for 2A (4 pcs / set) |
| /C12 | Clamp-on Probes for 3000A Jaw type (4 pcs / set) |
| /C14 | Clamp-on Probes for 3000A Flexible type (4 pcs / set) |
| /96036 | Clamp-on Probe for 2A measurement |

Optional AP240E Data analysis software package

Hioki Power Quality Analyzer

Catch power quality problems on the fly.

- Monitor Inrush Current, Voltage Swells, Voltage Dips, Transient Over-Voltage, Interruptions
- Measure and Record: Power and Power Factor, Active/Reactive Energy, Demand, Load Changes (with graph display), Voltage and Current
- Large 4.7" Color LCD with Backlight

3197
▶ & three
9661
sensors



ORDERING INFORMATION

| | |
|------------|--|
| HK/3197 | Power Quality Analyzer |
| HK/9660 | 100A Clamp-on Sensor (300V, Ø15mm jaw) |
| HK/9661 | 500A Clamp-on Sensor (300V, Ø46mm jaw) |
| HK/9667 | 5000A Flexible Clamp-on Sensor (1000V, Ø254mm jaw) |
| HK/9669 | 1000A Clamp-on Sensor (600V, Ø55mm jaw) |
| HK/9694 | 5A Clamp-on Sensor (300V, Ø15mm jaw) |
| HK/9624-50 | Deluxe PQA Analysis Software |

Includes: voltage cord set, 6 hour battery pack (rechargeable), AC adapter, USB cable, basic PC software, carrying case & strap. Order current sensors separately.

SPECIFICATIONS

| | |
|-----------------------------|--|
| Measurement lines: | Single-phase 2-wire (1P2W), single-phase 3-wire (1P3W), three-phase 3-wire (3P3W2M & 3P3W3M), three-phase four-wire (3P4W and 3P4W2.5E) |
| Measurement line frequency: | Auto-detect (50Hz/60Hz) |
| Voltage range: | 600.0V AC (crest factor 2 or less) |
| Current ranges: | 500.0mA, 5.000A, 50.00A, 10.00A, 100.0A, 500.0A, 1.000kA, 5.000 kA (manually switchable in 2 range sets according to clamp sensor) |
| Measurement items: | |
| Impulsive voltage quality: | Transient overvoltage (Impulse) |
| RMS voltage quality: | Voltage swell, Voltage dips, Voltage interruption |
| Power quality: | Frequency, Voltage, Current, Current peak, Active/Reactive/Apparent power, Power factor (displaced power factor) |
| Three phase quality: | Voltage unbalance ratio, Current unbalance ratio |
| Harmonic quality: | Harmonic voltage, Harmonic current, Harmonic power, Harmonic voltage/current phase angle, Total harmonic voltage distortion, Total harmonic current distortion (THD-F, THD-R), |
| Measurement method: | Simultaneous digital sampling of voltage and current (sampling frequency 10.24 kHz per channel) |
| Interval settings: | Auto / 1 / 5 / 10 / 15 / 30 / 60 minutes |
| Recordable period: | 125 days maximum; partition memory into four segments for maximum 31 days of recording each |
| Internal memory: | 4 MB non-volatile |
| PC Interface: | USB 2.0 |
| Dimensions: | 5.1"W x 9.7"H x 2.5"D (128 x 246 x 63 mm) |

Hioki AC/DC Current Monitor



◀ **3290**

Choice of measurement mode:

- DC (for battery measurement)
- AC+DC RMS (for full-/half-wave rectification measurement)
- AC RMS (for current distortion measurement)
- PEAK (for peak value measurement of inrush current, etc.)
- Selectable recorder output and response time
- Current integral, operating time/duty measurements (3290-10)

ORDERING INFORMATION

| | |
|------------|--|
| HK/3290 | Clamp-On AC/DC HiTester |
| HK/3290-10 | Deluxe Clamp-On AC/DC HiTester |
| HK/9691 | 100A AC/DC Clamp-on Sensor (600V, Ø35 mm jaw) |
| HK/9692 | 200A AC/DC Clamp-on Sensor (600V, Ø33 mm jaw) |
| HK/9693 | 2000A AC/DC Clamp-on Sensor (600V, Ø55 mm jaw) |
| HK/9445-02 | AC Adapter |
| HK/9400 | Carrying Case |

Includes: carry strap, 4 AA batteries. Order clamp-on sensor separately.

SPECIFICATIONS

| | |
|-----------------------|---|
| Current measurement: | AC RMS, AC MEAN, AC+DC, DC |
| Current ranges: | 20 to 100A with 9661 clamp 20 to 200A with 9662 clamp 200 to 2000A with 9663 clamp |
| Frequency: | 10 to 1000 Hz |
| Analog outputs: | DC or AC Current: 2V f.s. Level output with REC mode Waveform output with MON mode Integ./Frequency: 1V/f.s. |
| Accuracy: | Current: $\pm 1.3\%$ rdg. ± 3 digits. (typical) Frequency: $\pm 0.3\%$ rdg. ± 1 dgt. (typical at 50/60Hz) |
| Frequency response: | $\pm 2.3\%$ rdg. ± 8 dgt. (DC to 1 kHz) |
| Digital display: | 4 digit, maximum 3000 counts (9999 counts on 3290-10) |
| Bar display: | 20 segments |
| Sampling rate: | Fast: 4 times / sec (3290-10: 10times/sec), Normal: 2 times / sec, Slow: 1 time / 3sec |
| Crest factor: | 2.5 or less |
| Max. circuit voltage: | 600 V AC rms. (insulated wire) |
| Dimensions: | 6.1"W x 3.6"H x 1.9"D (155 x 98 x 47 mm) |

3290-10: Polarity specific integral function measures battery charging and discharging. Peak current display shows peak charge and discharge.

AEMC Three-Phase Power Quality Analyzers



**PowerPad™
3945B**



SPECIFICATIONS

Electrical

| | |
|--------------------|---|
| Sampling Frequency | 256 samples/cycle |
| Data Storage | 3945B: 4MB 8335: 2GB SD card |
| Voltage (TRMS) | 3945B: 960V Ø-Ø, 480V Ø-N 8335: 10-1000V Ø-Ø & Ø-N |
| Current (TRMS) | MN Clamp: 5mA to 100mA/ 120A or 2 to 240A MR Clamp: 10 to 1000Aac, 10 to 1400Adc SR Clamp: 3 to 1200A AmpFlex™: 10 to 6500A (Crest factor at 6500 = 1) |
| Frequency | 40 to 69Hz |
| Other Measurements | kW, kVAR, kWh, kVARh, kVAh, K-Factor, Flicker 3945B: PF, DPF 8335: INrush |
| Harmonics | 1st to 50th, Direction, Sequence |
| Power Source | 9.6V NiMH rechargeable battery pack AC Supply: 110/230VAC ±20% (50/60Hz) |
| Battery Life | ≥8 hrs with display on; ≥35 hours with display off (record mode) |

Mechanical

| | |
|---------------|--|
| Communication | Port Optically coupled RS-232 |
| Display | 1/4 VGA (320 x 240) color LCD |
| Dimensions | 9.5 x 7 x 2" (240 x 180 x 55mm) |
| Weight | 4.6 lbs (2.1 kg) |
| Safety Rating | 3945B: 600V CAT III 8335: 1000V, CAT IV |

- True RMS single-, two- and three-phase measurements at 256 samples/cycle, plus DC
- Real-time color waveforms
- Easy-to-use on-screen setup
- Automatic current probe recognition and scaling
- True RMS voltage and current measurement
- Measures DC volts, amps and power
- Display and capture voltage, current and power harmonics to 50th order, including direction, in real time
- Capture transients down to 1/256th of a cycle
- Phasor diagram display
- VA, VAR and W per phase and total
- kVAh, VARh and kWh per phase and total
- Neutral current display for three-phase
- Transformer K-factor display
- Power Factor, displacement PF display
- Captures up to 50 transients
- Short-term flicker display
- Phase unbalance (current and voltage)
- Harmonic Distortion (total and individual) from 1st to 50th
- Alarms, surges and sags
- Screen snapshot function captures waveforms or other information on the display
- Includes DataView® software for data storage, real-time display, analysis and report generation



All models include three color-coded current probes with 10 ft leads (MN93 example shown), four* color-coded 10 ft voltage leads, four* color-coded alligator clips, RS-232 DB9F optically coupled serial cable, NiMH battery, US 120V power cord, DataView® software, carrying bag, soft carrying pouch and user manual.

*Five in 8335 Kits

ORDERING INFORMATION

| | |
|------------|---|
| AE/2130.75 | PowerPad™ Model 3945B w/MN93 (240A) |
| AE/2130.76 | PowerPad™ Model 3945B w/SR193 (1200A) |
| AE/2130.77 | PowerPad™ Model 3945B w/24" AmpFlex™ 193-24 (6500A) |
| AE/2130.78 | PowerPad™ Model 3945B w/36" AmpFlex™ 193-36 (6500A) |
| AE/2130.79 | PowerPad™ Model 3945B w/MR193 (1000Aac/1400Adc) |
| AE/2130.80 | PowerPad™ Model 3945B w/MN193 (6A/120Aac) |
| AE/2136.21 | PowerPad® Model 8335 w/MN93 (240A) |
| AE/2136.22 | PowerPad® Model 8335 w/SR193 (1200A) |
| AE/2136.23 | PowerPad® Model 8335 w/24" AmpFlex® 193-24 (6500A) |
| AE/2136.24 | PowerPad® Model 8335 w/36" AmpFlex® 193-36 (6500A) |
| AE/2136.25 | PowerPad® Model 8335 w/MR193 (1000AAC/1400ADC) |
| AE/2136.26 | PowerPad® Model 8335 w/MN193 (5A/120AAC) |

Accessories (Optional)

| | |
|------------|---|
| AE/2140.14 | Set of three color-coded MN193 probes (6A/120A) with 10 ft leads |
| AE/2140.17 | 5A Adapter box |
| AE/2140.61 | Set of four color-coded 30 ft voltage leads |
| AE/2140.24 | Set of three color-coded MN93-30 probes (240A) with 30 ft leads |
| AE/2140.25 | Set of three color-coded SR193-30 probes (1200A) with 30 ft leads |
| AE/2140.26 | Set of three color-coded 24" AmpFlex™ 193-24-30 probes (6500A) with 30 ft leads |
| AE/2140.27 | Set of three color-coded 36" AmpFlex™ 193-36-30 probes (6500A) with 30 ft leads |
| AE/2140.28 | One AC/DC Current Probe Model MR193-BK (black connector) (1000Aac/1400Adc) |
| AE/2140.29 | Set of three color-coded MN193-30 probes (6A/120A) with 30 ft leads |
| AE/2140.30 | Set of three color-coded MR193-30 probes (1000Aac/1400Adc) with 30 ft leads |

AEMC Single-Phase Power Quality Analyzer



8230 PowerPad® Jr.

DataView® Software included with Model 8230

- Display and analyze real-time or recorded data on the PC
- Configure all PowerPad® Jr. functions & parameters
- Customize views, templates and reports
- Create and store a complete library of configurations
- Zoom in and out and pan through sections of the graph
- Display waveforms, trend graphs, harmonic spectrums, text summaries, transients, event logs & stored alarms

All models include current probe with 10 ft lead and black connector, black & red 10 ft voltage leads and alligator clips, optical USB cable, NiMH battery, US 120V power cord, DataView® software, carrying bag, soft carrying pouch and user manual.

- Displays Min, Max and Average Volts and Amps, Crest Factor, Peak value and K-Factor
- Calculates and displays Watts, VARs and VA, Power Factor and Displacement Power Factor for single-phase and balanced three-phase
- Displays total harmonic distortion (THD-F and THD-R) for voltage and current
- Displays individual harmonic values and % for Volts and Amps through the 50th harmonic
- Captures, displays and stores inrush current waveforms and statistics
- Stores up to eight screen captures
- Stores up to 1MB of trend recorded data
- Configurable from DataView® software or front panel
- Captures up to 4096 alarm events using up to 10 different thresholds
- Displays and records up to 17 different power quality parameters
- Includes DataView® software for data storage, real-time waveform display, analysis and report generation

SPECIFICATIONS

| | |
|--------------------|--|
| Electrical | |
| Voltage (TRMS) | 660V Phase-to-Phase, 600V Phase-to-Neutral |
| Current (TRMS) | MN Clamp: 5mA to 120A or 2 to 240A MR Clamp: 10 to 1000AAC, 10 to 1400ADC SR Clamp: 3 to 1200A AmpFlex®: 10 to 6500A (Crest factor at 6500 = 1) |
| Frequency | 40 to 70Hz |
| Other Measurements | kW, kVAR, PF, DPF, kWh, kVARh, kVAh, K-Factor, Flicker, Harmonic Phase Shift, Phase Rotation |
| Harmonics | THD-R, THD-F, V, A, VA 1st to 50th, Direction, Sequence |
| Sampling Frequency | 256 samples/cycle |
| Data Storage | 1.5MB partitioned for waveforms, alarms & trend |
| Power Source | NiMH AA rechargeable battery pack AC Supply: 120/230VAC (50/60Hz) |
| Battery Life | >Eight hrs with display on, >40 hrs with display off (recording mode) |
| Mechanical | |
| Communication Port | Optically isolated USB |
| Display | 1/4 VGA (320 x 240) color LCD |
| Dimensions | 8.3 x 4.3 x 2.4" (211 x 108 x 60mm) |
| Safety Rating | EN 61010, 600V Cat. III, Pollution Degree 2 |

ORDERING INFORMATION

| | |
|------------|---|
| AE/2130.82 | PowerPad® Jr. Model 8230 w/MN93-BK (240A) |
| AE/2130.83 | PowerPad® Jr. Model 8230 w/SR193-BK (1200A) |
| AE/2130.84 | PowerPad® Jr. Model 8230 w/24" AmpFlex® 193-24-BK (6500A) |
| AE/2130.85 | PowerPad® Jr. Model 8230 w/36" AmpFlex® 193-36-BK (6500A) |
| AE/2130.86 | PowerPad® Jr. Model 8230 w/MR193-BK (1000AAC/1400ADC) |
| AE/2130.87 | PowerPad® Jr. Model 8230 w/MN193-BK (6A/120AAC) |

AEMC Power Quality Meter



8220

- Displays Min, Max and Average Volts and Amps, Crest Factor, Peak value and K-Factor
- Calculates and displays Watts, VARs and VA, Power Factor and Displacement Power Factor for single-phase and balanced three-phase
- Displays total harmonic distortion (THD-F and THD-R) for voltage and current
- Displays individual harmonic values and % for Volts and Amps through the 50th harmonic
- Captures and displays inrush current
- Calculates & displays phase rotation & RPM
- Displays °F or °C & resistance to 2000Ω
- Conducts continuity and diode tests
- Stores up to nine complete sets of readings for all volt, amp, power, harmonics and other measurements
- Configurable from DataView® software or front panel
- Operates off batteries or optional AC adapter
- Includes DataView® software for data storage, real-time waveform display, analysis and report generation

All models include current probe with 10 ft lead & black connector, black & red 10 ft voltage leads and alligator clips, optical USB cable, six 1.5V batteries, two safety test probes, DataView® software, carrying bag, soft carrying pouch and user manual.

SPECIFICATIONS

| | |
|--------------------|--|
| Voltage (TRMS) | 660V Phase-to-Phase, 600V Phase-to-Neutral |
| Current (TRMS) | MN Clamp: 5mA to 120A or 2 to 240A MR Clamp: 10 to 1000AAC, 10 to 1400ADC SR Clamp: 3 to 1200A AmpFlex®: 10 to 6500A (Crest factor at 6500 = 1) |
| Frequency | 40 to 70Hz |
| Other Measurements | kW, kVAR, PF, DPF, VA, Harmonics, Phase Rotation, Temperature, RPM, Resistance, Continuity, Diode Test |
| Sampling Frequency | 256 samples/cycle |
| Data Storage | Stores nine sets of readings |
| Power Source | Six 1.5V AA Alkaline batteries (>8hr life with display on) AC Supply: 120/230VAC (50/60Hz) – optional |
| Communication Port | Optically isolated USB |
| Dimensions | 8.3 x 4.3 x 2.4" (211 x 108 x 60mm) |

ORDERING INFORMATION

| | |
|------------|---|
| AE/2130.91 | Power Quality Meter Model 8220 w/MN93-BK (240A) |
| AE/2130.92 | Power Quality Meter Model 8220 w/SR193-BK (1200A) |
| AE/2130.93 | Power Quality Meter Model 8220 w/24" AmpFlex® 193-24-BK (6500A) |
| AE/2130.94 | Power Quality Meter Model 8220 w/36" AmpFlex® 193-36-BK (6500A) |
| AE/2130.95 | Power Quality Meter Model 8220 w/MR193-BK (1000AAC/1400ADC) |
| AE/2130.96 | Power Quality Meter Model 8220 w/MN193-BK (6A/120AAC) |

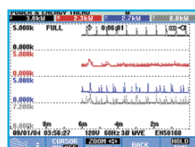
Three-line backlit digital display with custom icons

Fluke Three Phase Power Quality Analyzers

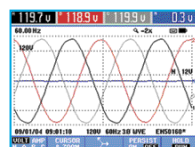


The Fluke 435 and 434 three-phase power quality analyzers help locate, predict, prevent and troubleshoot problems in three-phase and single-phase power distribution systems. The new IEC standards for flicker, harmonics and power quality are built in.

- Analyzer trends using cursor & zoom tools even while background recording
- Seven hours operating time per charge on NiMH battery pack
- Transfer data files to your PC for reporting and analysis using FlukeView® software



- Automatic transient capture: never miss an event
- Auto Trends: don't waste time setting up recordings



- Four voltage and four current channels capture waveform data on all phases simultaneously
- Meter display of phase readings

435 Includes: Hard carrying case with rollers, four flexible current probes (i430-flex), five test leads and clips, battery charger, FlukeView software, Power Log software, optical USB cable, color localization set, Getting started manual, Users manual.

434 Includes: Hard carrying case, four current probes (i400s), five test leads and clips, battery charger, FlukeView software, optical USB cable, color localization set, Getting started manual, Users manual.

3 Year warranty

ORDERING INFORMATION

| | |
|-----------|---------------------------|
| Fluke 435 | 3Ø Power Quality Analyzer |
| Fluke 434 | 3Ø Power Quality Analyzer |

| Feature | 435 | 434 |
|---|-----------------------------|-------------------|
| Measure voltage, current, dips, swells, interruptions, harmonics, inter-harmonics, flicker, power, energy, transients, frequency, unbalance, inrush, EN50160 overview | ● | ● |
| Logger function with multiple parameters | ● | Optional* |
| Mains signalling | ● | Optional* |
| Current probes | 3000A flexible (4) | 40/400A clamp (4) |
| Memory | 16MB | 8MB |
| Software | Power Log & FlukeView | FlukeView |
| IEC61000-4-30 Class A compliance | ● | ● |
| Safety rating | CAT IV 600 V/CAT III 1000 V | |
| Battery life | Up to 7 hours/charge | |
| *Optional function can be added with upgrade kit. | | |

SPECIFICATIONS

| | |
|----------------------|--|
| System Configuration | 1Ø+neutral, 1Ø split phase, 1Ø IT no neutral, 3Ø WYE, 3Ø Δ, 3Ø IT, 3Ø hi leg, 3Ø open leg, 3Ø 2-element, 3Ø 2½-element |
| Voltage Inputs | Four (3 phases + neutral), dc coupled |
| Maximum | 1000V rms, 6kV maximum peak measured |
| Bandwidth | >10kHz, up to 100kHz for transient display |
| Accuracy (ac+dc) | 435: ±0.1% of nominal voltage, 434: ±0.5% of nominal |
| Current Inputs | Four ((3 phases + neutral), dc coupled |
| Range | Determined by clamp-on probes used |
| Nominal Frequency | 40-70Hz, BW >10kHz |
| Accuracy (ac+dc) | 435: ±0.5%±20d, 434: ±1%±5d (with supplied probes) |
| Watts (VA, VAR) | 1.0-20.00MW (resolution 0.1 to 1 kW) |
| Accuracy | 435: ±1%±10d, 434: ±1.5%±10d |
| Sampling | 16 bit resolution. 200k samples/second max |
| Logger Function | Captures up to 10000 events, 100 parameters/phase |
| Display | 4.5" x 3.4" Color LCD, 320x240 pixel |
| Power | 115/230V ac or battery, built-in battery charger |

Fluke Power Quality Analyzer



- Voltage, current and power harmonics up to 51st
- Total harmonic distortion (THD)
- Phase angle of individual harmonics
- Watts, power factor, displacement power factor, VA and VAR
- Voltage and current waveforms
- Calculates 3Ø Power on Balanced Load from 1Ø Measurement
- Use cursors to read time and date of sags and swells.
- Catch voltage transients and waveform distortion
- See current at the instant of voltage events
- Catch and save up to 40 transients
- Correlate the cause of distortion with time and date stamps
- 3 Year Warranty

The Fluke 43B includes a hard case, voltage and current probes, FlukeView® PC software and cable, line voltage adapter/battery charger, applications manual, power quality video and user's manuals.

ORDERING INFORMATION

| | |
|-----------|------------------------|
| Fluke 43B | Power Quality Analyzer |
|-----------|------------------------|

The Fluke 43B Power Quality Analyzer performs the measurements you need to maintain power systems, troubleshoot power problems and diagnose equipment failures. All in a rugged handheld package.

| Function | Measurement | Accuracy/Selection |
|-------------------|--|---|
| Volts | 5.000V-600V RMS (AC & DC) | |
| Amps | 50.00A-50.00kA RMS (AC & DC) | ±(1%+10d) |
| Mains Frequency | 40.0-70.0Hz | ±(0.5%+2d) |
| Watts, VAR, VA | 250W-2.5MW | ±(4%+4d) |
| PF, DPF | 0.25-1.00 | ±0.04 |
| Sags & Swells | Voltage and Current | 4 min-16 days selectable |
| Transient Capture | 40 ns pulse width Up to 40 transients | Select 20/50/100/200% above or below line voltage |
| Thrush Current | 1A to 1000A | 1s to 5 min selectable |
| Ohms | 500.0Ω to 30.00MΩ | ±(0.6%+5d) |
| Capacitance | 50.00nF to 500.0μF | ±(2%+10d) |
| Scope | Dc, ac, ac+dc, peak, peak-peak, Hz, duty cycle, phase, pulse width, crest factor | Sampling rate: 25MS/sec Bandwidth: Voltage BW (Channel 1): 20MHz Current BW (Channel 2): 15kHz |
| Screen Saves | All functions | 10 screens |
| Recording | V/A/Hz, Power, Harmonics, Ω/Cap, Temperature, Scope | 4 min-16 days selectable parameters in each display mode |

Battery life: Rechargeable Ni-Cd pack (charger included), 6 hrs typical (continuous)

OPTIONAL ACCESSORIES

| | |
|-----------|--|
| i200s | 240A AC current probe |
| 80i-1000s | 1000A AC current probe |
| i2000flex | 2000A flexible AC current probe |
| 80TK | Thermocouple module |
| 80T-IR | Non-contact infrared temperature probe |
| PAC91 | Parallel printer adapter |

WESCHLER INSTRUMENTS



Only a few products from each manufacturer are shown on our website.

Please call 800-903-9870 or 440-238-2550 for information and assistance on the product you selected.

| MANUFACTURERS | | PRODUCTS | |
|--------------------------|----------------------|------------------------|----------------------------|
| Action Instruments | LFE | Meters | Signal Conditioners |
| AEMC | Madison | Analog | Isolators |
| Alaron | Martel / Beta | Digital | Transmitters |
| Altek | Megger / Biddle | Bargraph | Loop Splitters |
| Amprobe | Meterman | Panel | Alarms |
| API | MeterMaster | Process | Switches |
| Ashcroft | Midwest Transformers | Power | Test Equipment |
| Applied Technical | Modutec | Switchboard | Multimeters |
| ATC / Westcon | Monarch | Mil Spec | Clamp-On Meters |
| Bacharach | National Meter | Large Display | Thermometers |
| Beede | Newport | Meter Relays | Humidity Meters |
| Crompton | NK Technologies | Sensors | Light Meters |
| Dixson | Non-Linear Systems | Temperature | Megohmmeters |
| EIL | Noshok | Pressure | Hipot Testers |
| Electro Industries | Pyragon | Flow | Ground Testers |
| Empro | Pyromation | Strain | Insulation Testers |
| ENM | Raytek | Position | Cable Testers |
| Extech | Selco / Asahi | Load | Power Analyzers |
| Flexcore | Simpson | Voltage | Process Calibrators |
| Fluke | Texmate | Current | Miscellaneous |
| Fuji / TTI | Transmation | Speed | Counters |
| Hioki | Triplett | Level | Timers |
| Hoyt | Vaisala | Humidity | Clocks |
| Instrument Transformer | VAS / Doric | Vibration | Controllers |
| International Instrument | Veris | Transducers | Recorders |
| Ideal (Sperry) | Weschler | Current Transformers | Data Loggers |
| Kessler Ellis | Westinghouse | Potential Transformers | Power Supplies |
| Kobold | Weston (A&M) | Shunts | Protection Relays |
| Laurel Electronics | Yokogawa | | & More |
| LEM | | | |